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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,424	11/12/2003	Richard H. Ffrench-Constant	62,878A	5813
25212	7590	01/12/2006	EXAMINER	
DOW AGROSCIENCES LLC 9330 ZIONSVILLE RD INDIANAPOLIS, IN 46268			KUBELIK, ANNE R	
		ART UNIT	PAPER NUMBER	
		1638		

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/706,424	FFRENCH-CONSTANT ET AL.
	Examiner	Art Unit
	Anne R. Kubelik	1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(e). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 17 October 2005.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 1 and 2 is/are allowed.
- 6) Claim(s) 3-14 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: search results.

## DETAILED ACTION

1. Applicant's election of Group IV and nucleic acids encoding SEQ ID NO:10 in the reply filed on 17 October 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. The title of the invention is not descriptive of the instantly claimed invention. A new title is required that is clearly indicative of the invention to which the claims are directed. Note that titles can be up to 500 characters long.
3. The abstract is not descriptive of the instantly claimed invention. A new abstract is required that is clearly indicative of the invention to which the claims are directed. The abstract of the disclosure should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

### *Claim Objections*

4. Claims 3-10 and 12 are objected to because of the following informalities:
  - Claims 3-5, line 2, have an improper article before "protein".
  - Claim 5 repeats "nucleic acid" in line 1.
  - Claims 6-9 start with an improper article and are missing a comma after "5".
  - Claims 10-11 should start with an article.
  - In claim 10, an article missing before "seed".
  - In claim 12, line 3, --the group consisting of-- should be inserted after "selected" and "or" should be replaced with --and--.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

A full review of the specification indicates that nucleic acids encoding TcdA1, TcdB1 and TccC2 are essential to the operation of the claimed invention. The claimed methods encompass the use of a nucleic acid encoding any TcdA1, TcdB1 and TccC2; however, the specification describes no such nucleic acids. While the prior art describes some examples of nucleic acids encoding TcdA1, TcdB1 and TccC2, the structural features that distinguish TcdA1 from other TcdA-like proteins is unclear; TcdA1 from *Photorhabdus luminescens* W14 is more similar to TcdA2 than it is to TcdA1 from *X. nematophilus* (Waterfield et al 2001, Trends Microbiol. 9:185-191; Fig 3). Similarly, the structural features that distinguish TccC2 from other TccC-like proteins is unclear; TccC2 from *P. luminescens* W14 is more similar to TccC1 from *P. luminescens* W14 than it is to TccC2 from other bacteria. Thus, the structural features that distinguish TcdA1, TcdB1 and TccC2 from other TcdA-like, TcdB-like and TccC-like proteins are not described in the prior art or the specification.

Hence, Applicant has not, in fact, described nucleic acids that encode TcdA1, TcdB1 and TccC2 within the full scope of the claims. Because the sequences are not described, the method of using the sequences to produce toxin is likewise not described, and the specification fails to provide an adequate written description of the claimed invention.

Therefore, given the lack of written description in the specification with regard to the structural and functional characteristics of the compositions used in the claimed methods, it is not clear that Applicant was in possession of the claimed genus at the time this application was filed.

7. Claims 3-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are broadly drawn to plants, plant cells and seeds transformed with only a nucleic acid encoding SEQ ID NO:10, which encodes TcdB2 from *Photorhabdus luminescens* W14.

The instant specification, however, only provides general guidance for expression of proteins in plants; no working examples in which insect resistant plants, plant cells or seeds transformed with only a nucleic acid encoding SEQ ID NO:10 are presented.

The instant specification fails to provide guidance for how to use plants, plant cells and seeds transformed with only a nucleic acid encoding SEQ ID NO:10.

Waterfield et al (2001, Appl. Environ. Microbiol. 67:5017-5024) teach that in *S. entomophila*, which has toxin homologs to tcdA, tcdB and tccC, expression of all three is

required to produce active toxin (paragraph spanning pg 5023-5024). This suggests that plants expressing tcdB1 (SEQ ID NO:10) alone would not be insect resistant. As Applicant provided no working examples that show that plants expressing SEQ ID NO:10 alone are insect resistant, the unpredictability suggested by the art is not overcome.

Given the claim breadth, unpredictability in the art, and lack of guidance in the specification as discussed above, the instant invention is not enabled.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Dependent claims are included in all rejections.

In it unclear in claims 12-14 what the practitioner of the method must do to express the DNAs in a host, given that the DNAs do not have inducible promoters operably linked to them.

10. Claims 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are promoters operably linked to each DNA to permit their expression in the host cells.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 3-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kramer et al (2001, US Patent 6,281,413).

Kramer et al teach a nucleic acid that encodes “a” protein of SEQ ID NO:10, and plants, plant cells and seeds comprising it; the plants include rice, maize, tobacco and cotton (column 8, lines 17-45; column 15, lines 33-58; column 46, line 4, to column 48, line 25; claims 1-20). The rejection is made because a nucleic acid that encodes “a” protein of SEQ ID NO:10 includes nucleic acids that encode the full-length sequence of SEQ ID NO:10 and those that encode any portion of SEQ ID NO:10.

13. Claims 1-2 and 12-14 are free of the prior art, given the failure of the prior art to teach or suggest isolated nucleic acids encoding SEQ ID NO:10. The closest prior art is Waterfield et al (2001, Trends Microbiol. 9:185-191) and Kramer et al (2001, US Patent 6,281,413) who teach nucleic acids that encode proteins with 75/9% and 76.1% identity, respectively, to SEQ ID NO:10 (see search results).

14. Claims 1-2 are allowed.

### *Conclusion*

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg, can be reached at (571) 272-0975.

The central fax number for official correspondence is (571) 273-8300.

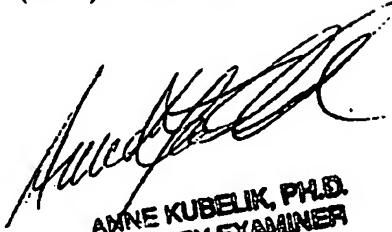
Art Unit: 1638

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Anne Kubelik, Ph.D.  
January 6, 2006



ANNE KUBELIK, PH.D.  
PRIMARY EXAMINER

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OM protein - protein search, using SW model

Run on: December 16, 2005, 14:28:20 ; Search time 56 Seconds (without alignments)

2176.142 Million cell updates/sec

Title: US-10-706-424-10

Perfect score: 7901

Sequence: 1 MONGQDFSTTELSLPGGGAA.....WFTVNEDENDTAAEVKVKM 1474

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 572060 seqs, 82675679 residues

Total number of hits satisfying chosen parameters: 572060

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% ; Maximum Match 100% ; Listing First 45 summaries

Database : Issued Patents AA:\*

1: /cgn2\_5/ptodata/1/iaa/5\_COMB.pep:\*

2: /cgn2\_6/ptodata/1/iaa/6\_COMB.pep:\*

3: /cgn2\_6/ptodata/1/iaa/H\_COMB.pep:\*

4: /cgn2\_6/ptodata/1/iaa/PCOMB.pep:\*

5: /cgn2\_6/ptodata/1/iaa/RCOMB.pep:\*

6: /cgn2\_6/ptodata/1/iaa/baCfilesls1.pep:\*

RESULT 1  
US-09-251-645-14  
; Sequence 14, Application US/09251645  
; Patent No. 621413

; GENERAL INFORMATION:  
; APPLICANT: Kramer, Vance C.  
; APPLICANT: Morgan, Michael K.  
; APPLICANT: Anderson, Arne R.  
; APPLICANT: Hart, Hope  
; APPLICANT: Warren, Gregory W.  
; APPLICANT: Dunn, Martha S.  
; APPLICANT: Chen, Jeng S.  
; TITLE OF INVENTION: NOVEL INSECTICIDAL TOXINS FROM PHOTORHABDUS LUMINESCENS  
; FILING NUMBER: 10/09251645  
; CURRENT APPLICATION NUMBER: US/09/251,645  
; CURRENT FILING DATE: 1999-02-17  
; NUMBER OF SEQ ID NOS: 22  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO: 14  
; LENGTH: 1481  
; TYPE: PRT  
; ORGANISM: Photorhabdus luminescens  
; US-09-251-645-14

Query Match 76.5%; Score 6042; DB 2; Length 1481;  
Best Local Similarity 76.1%; Pred. No. 0;  
Matches 1127; Conservative 113; Mismatches 226; Indels 14; Gaps 5;

Qy 1 MONGQDFSTTELSLPGGGAA.....WFTVNEDENDTAAEVKVKM 60  
Db 1 MONGQDFSTTELSLPGGGAA.....WFTVNEDENDTAAEVKVKM 60

Qy 61 SGAGNSPFGLGWDNCNTMTIRRTHFVPHDSTDTJGPGESVLYVAA-----DQPDBS 114  
Db 61 SGAGNSPFGLGWDNCNTMTIRRTHFVPHDSTDTJGPGESVLYVAA-----DQPDBS 114

Qy 115 TLIQGINLGGATTVTGTRSLSHFSLSLSEYQKPTKGTDFWLIYSPDGQVHLLGKSPQAR 174  
Db 115 TLIQGINLGGATTVTGTRSLSHFSLSLSEYQKPTKGTDFWLIYSPDGQVHLLGKSPQAR 174

Qy 121 SLQGINLGMVPTVTRSLSHFSLSLSEYQKPTKGTDFWLIYSPDGQVHLLGKSPQAR 180  
Db 121 SLQGINLGMVPTVTRSLSHFSLSLSEYQKPTKGTDFWLIYSPDGQVHLLGKSPQAR 180

Qy 175 ISNPNSPTTQAQWILLEASVSSRSGQQYYQYRAEDDTGCAEDBTHLQATQYLYVYY 234  
Db 175 ISNPNSPTTQAQWILLEASVSSRSGQQYYQYRAEDDTGCAEDBTHLQATQYLYVYY 234

Qy 181 ISNPVNNTQAQWILLEASVSSHGEQQYYQYRAEDDTGCAEDBTHLQATQYLYVHY 240  
Db 181 ISNPVNNTQAQWILLEASVSSHGEQQYYQYRAEDDTGCAEDBTHLQATQYLYVHY 240

Qy 235 GNRNTASSTLPGDGSAPSQADWFLVTFDNGERSNNLKTTPAPSTGWSWLGRQDRSRYB 294  
Db 235 GNRNTASSTLPGDGSAPSQADWFLVTFDNGERSNNLKTTPAPSTGWSWLGRQDRSRYB 294

Qy 241 GNLNTASEVFPFLNGDDPLKGWLFCVLFYDGERNSLSENBPPKATSNWLCKDRSRYB 300  
Db 241 GNLNTASEVFPFLNGDDPLKGWLFCVLFYDGERNSLSENBPPKATSNWLCKDRSRYB 300

Qy 295 YGFEBIRTRRLCRQVNLQHQLQDLSKITEHNGPFLVSRLLNAYDSEASIASTLVEYVRVGH 354

## SUMMARIES

Result No.	Query	Score	Match Length	DB ID	Description
1	6042	76.5	1481	2 US-09-251-645-14	Sequence 14, Appli.
2	6011.5	76.3	1476	2 US-09-817-514A-4	Sequence 4, Appli.
3	4501.5	58.0	1485	2 US-08-851-567B-32	Sequence 32, Appli.
4	160.5	2.0	1426	2 US-09-892-709A-340	Sequence 340, Appli.
5	155.5	2.0	658	2 US-09-252-991A-24910	Sequence 24910, Appli.
6	155.5	2.0	2315	2 US-09-543-682A-534	Sequence 5434, Appli.
7	154	1.9	4630	2 US-09-091-609-2	Sequence 2, Appli.
8	154	1.9	5215	2 US-09-105-537-2	Sequence 2, Appli.
9	153.5	1.9	1028	2 US-09-543-682A-7181	Sequence 7181, Appli.
10	144	1.8	1377	2 US-09-711-164-467	Sequence 467, Appli.
11	143	1.8	798	2 US-09-489-039A-10045	Sequence 10045, Appli.
12	142.5	1.8	1183	1 US-08-447-032A-2	Sequence 2, Appli.
13	140	1.8	979	2 US-08-346-452B-38	Sequence 38, Appli.
14	140	1.8	979	2 US-08-977-221-38	Sequence 38, Appli.
15	140	1.8	979	2 US-09-831B-70	Sequence 70, Appli.
16	140	1.8	979	4 PCT-US95-06613-38	Sequence 38, Appli.
17	139.5	1.8	646	2 US-09-902-540-10353	Sequence 10353, Appli.
18	139.5	1.8	1577	1 US-08-793-82-2	Sequence 2, Appli.
19	139	1.8	2200	2 US-09-796-57-2	Sequence 2, Appli.
20	138	1.7	1529	2 US-09-215-694-1	Sequence 1, Appli.
21	138	1.7	1529	2 US-10-109-310-1	Sequence 1, Appli.
22	137	1.7	2628	1 US-08-570-311-14	Sequence 14, Appli.
23	136.5	1.7	990	1 US-08-232-540-2	Sequence 2, Appli.
24	136.5	1.7	990	1 US-08-128-99A-2	Sequence 2, Appli.
25	136.5	1.7	990	1 US-08-428-98A-2	Sequence 2, Appli.
26	136.5	1.7	990	1 US-08-428-946-2	Sequence 2, Appli.
27	136.5	1.7	990	4 PCT-US95-04656-2	Sequence 2, Appli.

301	YGFALTRRLCRQTMFHRQLQTLSQAKGDEPALYSLDIDENAVSTLVSRRVH	360	Db	1381	QDGSLVTRKMEDETKTRWALTGRTBYDNKGQAIRTYQPYFLNDWRYVSDDSAR -- KEAYADT 1438		
355	EDQ-NVTLPLPPELAYQDPSRPHAHQMDVLNFTNIAJQRMWLVQDLYKCGFLQYD	413	Qy	1429	HYDPIGRKIVTAKGFRRTLTFPWFVNEDNTAB 1468		
361	EDGDTAVALPLPPELAYQDPSRPHAHQMDVLNFTNIAJQRMWLVQDLYKCGFLQYD	420	Db	1439	HYDPIGRKIVTAKGFRRTLTFPWFVNEDNTAB 1478		
414	KGAWYTRSAORLGBIGSDAYTWKNOPLSYTSPLOSNASLVDINGDQDWTGPGLRG	473	Qy	RESULT 2			
421	RNGWTRSAORLGBIGSDAYTWKNOPLSYTSPLOSNASLVDINGDQDWTGPGLRG	480	Db	US-09-817-514A-4			
474	YHSDPDSATRFTPLNAPYBTHPRAOLADLMGAGLSDLVIGPKSYRVLANTRDGFA	533	Qy	Sequence 4, Application US/09817514A			
481	YHSDPDSATRFTPLNAPYBTHPRAOLADLMGAGLSDLVIGPKSYRVLANTRDGFT	540	Db	; Patent No. 6639129			
534	KGDIVQSGDITLIPGADPKVAFSDVLSGSAHILVEVSATKTCWPNLGHFRGQPI	593	Qy	; GENERAL INFORMATION:			
541	BRDYYQSGGTTPLPGADARKVAFSDVLSGSOAHLYEVSAKTYCWPNLGHFRGQPI	600	Db	; APPLICANT: ffrench-Constant, Richard			
594	TLPGFSQATEFNPAQVYLAQDLDGSSEPTDLIVVHVNRLDFLKNSGNGPAEPVTLRPPBG	653	Qy	; Boven, David			
601	TLPGFSQARANPVPDVLADLGDGSPADLIVYHADHDLFSENGSGNFAQPFLTRPBG	660	Db	; Rocheleau, Thomas			
654	LRFDITCQLQMLADYQGIVSASLILSPHMSPHWRCDLTMKPMVLLNEMNMMGHTLH	713	Qy	; Waterfield, Nicholas			
661	LRFDITCQLQYADQGIVSASLILSPHMSPHWRCDLTMKPMVLLNEMNMMGHTLH	720	Db	; TITLE OF INVENTION: DNA SEQUENCES FROM PHOTORHABDUS LUMINESCENS			
714	YRSSQWLDKZAAALTTGCPVCHLPPITLWQETEDBISGKCVTTLXARGWDG	773	Qy	; TITLE OF INVENTION: DNA SEQUENCES FROM PHOTORHABDUS LUMINESCENS			
721	YRSSQWLDKZAAALATGQTVCPVYLPPVHLLQETEDISGKLVTTLYARGWDG	780	Db	; FILE REFERENCE: 6165			
774	REBREFRGYVEQTDHOLAQNAPERTPPALTKWYATGLPVIDNALSTPEYMR-DDQAF	832	Qy	; CURRENT APPLICATION NUMBER: US/09/817,514A			
781	REBREFRGYVEQTDHOLAQNAPERTPSALTKWYATGPEVDTLISAGYMRDDQAF	840	Db	; CURRENT FILING DATE: 2000-03-26			
833	AGFSPRETTWQDKVPLTPEDDNSRVMWFLALKGOLLRSPLVYGLDDSTNKHVPYTVTER	892	Qy	; PRIORITY APPLICATION NUMBER: US 6/0/191806			
841	TEPTEPHTLWKGDKVPLTPBDHNLJTWLNALKGOPLRSPLVYGLDQPKQSVQY	900	Db	; PRIORITY FILING DATE: 2000-03-24			
893	RSGVRLQHDTSDRKYPLWSSSTESRHYERIASDPCQSONTILSSDRFQPLKQLSVQY	952	Qy	; NUMBER OF SEQ ID NOS: 8			
901	REQVROLQDNTLSPVLAWSYTESRHYERISDPCQNCQDTLSSDLCPLQPKQSVQY	960	Db	; SOFTWARE: PatentIn version 3.0			
953	PRQRQPAINLYETDLDPKLLANSYDDQQRQLTYQSSWHLINTNTRVNLGPDSRSD	1012	Qy	; SEQ ID NO: 4			
961	PRRNKPTNPYDFTLPLTLPSSYDQQQLTYQSSWHLILRVLGQPLGQTRSD	1020	Db	; LENGTH: 1476			
1013	IPTYGAENVPGAGLNLBLLSDNLSLADDKPRBRYLQGQKTTAY---TDDGONTPLQPTTR	1068	Qy	; ORGANISM: Photorhabdus luminescens			
1021	APTYDAKHPVQGLNLALCAENSLADDKPRBRYLQGQKTTDGGKNTPLKPTTR	1080	Db	; SEQ ID NO: 4			
1069	QALIAFETTUVNOSTLSAENGSISPSDKU-SLTLEQAGYQCTNLYPRTGKDQVWYAHHG	1128	Qy	; US-09-817-514A-4			
1081	QALIAFETTUVNOSTLSAENGSISPSDKU-SLTLEQAGYQCTNLYPRTGKDQVWYAHHG	1140	Db	; CURRENT APPLICATION NUMBER: US/09/817,514A			
1129	TIDGTAOFWRQOKQNTQLTGKTTLWDANTCYQVTDAGLITSAKIDWRELTPTVOL	1188	Qy	; CURRENT FILING DATE: 2000-03-26			
1141	TIDGTEQFWRAQRTQLTGKTTLWDANTCYQVTDAGLITSAKIDWRELTPTVOL	1200	Db	; PRIORITY APPLICATION NUMBER: US/09/817,514A-4			
1189	TDINDNQHLLITDLAGRPITLRFWGTENGMTGSSPKASSSPSDYNAIBLKXPLPV	1248	Qy	; NUMBER OF SEQ ID NOS: 8			
1201	TDINDNQHLLITDLAGRPITLRFWGTENGMTGSSPKASSSPSDYNAIBLKXPLPV	1260	Db	; PRIORITY FILING DATE: 2000-03-24			
1249	ACQCVYAPSMWPLSQTENRLABODWOKLUNARLTDGRCTLAYRRVYOSOKAIP	1308	Qy	; NUMBER OF SEQ ID NOS: 8			
1261	ACQLYVADSMWPLGQETNTLQTBEOKTLDRLITBDWICALRRRNNQSQAGTP	1320	Db	; PRIORITY APPLICATION NUMBER: US/09/817,514A-4			
1309	LISLNNNGPRPLPHSLTMTDHDPRQIQIQQVPSDGFGRLLQQAHRHAGMARQ	1368	Qy	; PRIORITY FILING DATE: 2000-03-26			
1321	LUCLITSIGLPHMLATDVRDSEQTQVAFDGFGRLLQQAHRHAGMARQ	1380	Db	; PRIORITY APPLICATION NUMBER: US/09/817,514A-4			
1369	EDGSLIINVQHTENRWAUTGRTBYDNKGQPIRITYQPFLNDRYVNSD SARDEBEAYADT	1428	Db	; PRIORITY FILING DATE: 2000-03-26			
1381	QDGSLVTRKMEDETKTRWALTGRTBYDNKGQAIRTYQPYFLNDWRYVSDDSAR -- KEAYADT 1438		Qy	; PRIORITY FILING DATE: 2000-03-26			
1429	HYDPIGRKIVTAKGFRRTLTFPWFVNEDNTAB 1468		Qy	; PRIORITY FILING DATE: 2000-03-26			
1439	HYDPIGRKIVTAKGFRRTLTFPWFVNEDNTAB 1478		Db	; PRIORITY FILING DATE: 2000-03-26			

Db	241	GNLTAESYRPTLNEDDPLKSGMFLCIVTDGERNSLSSEIPPKASSIWLQDREFRYE	300	Db	1321	TNSIGLPPHNNTLTPDRDSGQQIHQVQAFSDGFRLLQASVRHEAGWQRNQDGLS	1380		
Qy	295	YGFELTRTRLLCROVLYMFLQALDSKITYEHNGPILVSLILNDESAEASTLIVFVRIGH	354	Qy	1374	TINVQHTENRWAUTGRTETYDNGKQPTRTQYFLLDWRYSNDSRQGKRAYADTHYDP	1433		
Db	301	YGFELTRTRLLCROVLYMFLQALDSKITYEHNGPILVSLILNDESAEASTLIVFVRIGH	360	Db	1381	VTKMDKTRVAVTGRTEYDNGKQPTRTQYFLLDWRYSNDSR - KGAYADTHYDP	1438		
Qy	355	BQDGAVVTTPLPLELAYQDOSPRHAAWQMDVIANFNAIQWVLDKGEGLPGLYQDK	414	Qy	1434	IGREKIVITAGWPRFLTFPWFVNDENDTAEV	1469		
Db	361	EDNNTVISAPPLEYQDPEPEKAWMSMDVIANFNAIQWVLDKGEGLPGLYQDK	420	Db	1439	IGREKIVITAGWLRQSOYFPPWTFVSEDENTDAEV	1474		
Qy	415	GAWYRSARQLIGEIGSDATWKEWQPLSIVPSLQNSAISVLDINGDGDLDWITGPGLRGY	474	RESULT 4					
Db	421	NGWYRSARQARQAGEMNIVTWRQMLLPTPAQDQNSALMDINGDGDLDWITGPGLRGY	480	Q93EP6 PHOLU PRELIMINARY	PRTR	1476 AA.			
Qy	475	HSQDPDGSTRTRFLPNALEVETHPRQALADINGAGSLDVLIGPKSVRLYANTROFAK	534	AC	Q93EP6				
Db	481	HSQDPDGSTRTRFLPNALEVETHPRQALADINGAGSLDVLIGPKSVRLYANNRQDFQ	540	DT	01-DBC-2001 (TREMBLrel. 19, Created)				
Qy	535	GKDVQSGSDITLPVGADEPKLVAFSDVLSGQAHLYEVSAKTVCMFNLGRGRGQFQIT	594	DT	01-DBC-2001 (TREMBLrel. 19, Last sequence update)				
Db	541	GRDVVQSGDITLPVGADEPKLVAFSDVLSGQAHLYEVSAKTVCMFNLGRGRGQFQIT	600	DT	01-MAR-2004 (TREMBLrel. 26, Last annotation update)				
Qy	595	LPGFQSQPATBNPQVYIADLQDGSQPTLIVYHVNRLDIFLANKSGNGFAEPYTLRFPGL	654	DR	Toddb1.				
Db	601	LPGFQSQADNQSPNDRVHADLQDGSQPADELYVHVNRLDIFLANKSGNGFAEPYTLRFPGL	660	DR	Name=cd81;				
Qy	655	RFDITCQLQMLADYQGLGASLISLSPVNSPAPHRVCDLTNAKWLNNENRNGVHHTLY	714	OS	Photorhabdus luminescens (Xenorhabdus luminescens).				
Db	661	RFDITCQLQMLADYQGLGASLISLSPVNSPAPHRVCDLTNAKWLNNENRNGVHHTLY	720	OC	Photobacter; Proteobacteria; Gammaproteobacteria; Enterobacteriales;				
Qy	715	RSSSQFWLDEKAALLTGOTCPVCLPFPITHMOTETDEISERNKLVTTLRYARGAVDGR	774	OC	Enterobacteriaceae; Photobacteriales; Photorhabdus.				
Db	721	RSSSQFWLDEKAALLTGOTCPVCLPFPITHMOTETDEISERNKLVTTLRYARGAVDGR	780	OC	Enterobacteriaceae; Photobacteriales; Photorhabdus.				
Qy	775	ERERFGFCTYEQCTDSHQLAQGNAEPTTPALTKWYATGLPVTDNALSTSTEYR-DDQAF	833	RC	NCBI_TaxID=29488;				
Db	781	ERERFGFCTYEQCTDSHQLAQGNAEPTTPALTKWYATGLPVTDNALSTSTEYR-DDQAF	840	RC	NUCLEOTIDE SEQUENCE.				
Qy	834	GFSRFTTQDNDKQVPLFEDDSRKYWTRALQKQLSSELVQLDSTKRNKPYTTEFR	893	RC	STRATN=W14;				
Db	841	GPTERFTWKEKGDVPAPENDNLYWTRALQKQLSSELVQLDSSQEQNTPYVTESR	900	RC	MEDLINE=21545990; PubMed=12564983; DOI=10.11016/S0966-842X(02)02463-0;				
Qy	894	SOVRLQHTDSRXPVLSWSSVVESRNHYERIASDPOCSQNTLSSDRGQPLKQLSVQY	953	RC	STRATN=W14;				
Db	901	PQVRLQDOTTASVLMASVVERSTYHETIILGDPQCDITLSSDQGQFLQVSNQY	960	RC	Waterfield N.R., Bowen P.J., ffrench-Constant R.H.,				
Qy	954	RROQAPATLNPYDPLKLLANSDDQQLQRLTITYQSSWHLTNTNVTYVGLPDSRTSDI	1013	RC	RT	"The cc genes of Photorhabdus: a growing family.";			
Db	961	RRNQPTTNPYDPLPDTIASSYDQQLLRLTCQSSWHLTGTGNEBLVGLPDTGTSDA	1020	RC	RT	Trends Microbiol. 9:185-191(2001).			
Qy	1014	FTGAGENTPAGGNEELLSDKNSLIAADKPRELQGQTTAYTDQNTPLQPTPQTLIA	1073	RC	RT	Trends Microbiol. 9:185-191(2001).			
Db	1021	FTYDAKOPVGDNLNEALCAENSLIAADKPRELQGQTTAYTDQNTPLQPTPQTLIA	1080	RC	RT	RT			
Qy	1074	FTETTVPNOSTLSAFNGSIPSDFKLLSTLQEAGYQNTLYPRTGEDKWHGHTYGT	1133	Qy	1	MONSDQPSITSLSPKGGAITGMGEALTPGDPGMAALSLPLPISAGRYAPAFTLVNN	60		
Db	1081	FTETAVLTSLLSFDGTPDPLGFLTQAGTQBPFLPRTGENKTVARQHTYGT	1140	Db	1	MONSDQPSITSLSPKGGAITGMGEALTPGDPGMAALSLPLPISAGRYAPAFTLVNN	60		
Qy	1134	AAQFWRPKOKSNTOLTGKTLINDANCKYVYOTRDAAGLHTSAKYDWFRLPTVQLTDND	1193	Qy	61	SGAGNSPFGLNDCNVNTIRTHFVPHYDETDTFQPGEGVLYVAA - - - DQPDDES	114		
Db	1141	EAQFWRPKVAORTNLTGKTLQWTHCVTQDAGTVALNVDWFLPTVQLTDND	1200	Db	61	SGTGNSPFGLNDCGMVAIRRTSTGPTVNDTDFQPGEGVLYVAA - - - DQPDDES	120		
Qy	1194	NQHITLTDALGRPTIRPFGTENKMTGSSPEAKSPFPPSDVNAIEKKLPVACQV	1253	Qy	115	TQGTINGATGFTYGRSRLESHSFSLREYWOQTKTGTDFWLIYSPDQVHLLGKSPQR	174		
Db	1201	NVHLITLDAIGRPVQRFENGIVLSEKPTGSSPPEKPFSEPDINTAALTGPFLPVACQV	1260	Db	121	SIQINGNIGATFTVTCYRSRLESHSFSLREYWOQTKTGTDFWLIYSPDQVHLLGKSPQR	180		
Qy	1254	YAPSEWMVPLSOKTENRLLAEQDWKLYNARIRTEGRICLTLAYTRWYOSRAIPOLISLL	1313	Qy	175	ISNPSQTOTAOWLLAEASVSSRGEQIYQYRAEDTGCEADEITHLQATQRYLHIVYY	234		
Db	1261	YAPSEWMVPLSOKTENRLLAEQDWKLYNARIRTEGRICLTLAYTRWYOSRAIPOLISLL	1320	Db	181	ISNPLAYNOTAQWLLAEASVSSRGEQIYQYRAEDTGCEADEITHLQATQRYLHIVYY	240		
Qy	1314	NNGPRLPPHSLSLTITDYPDPEQIRQYVFSNGFGRILQAAARHAGMARAQRNEDGSL	1373	Qy	235	GNRTASTLPLGIDGSAFSQADWLFYVFDYGRISNLKTPPAFSTGWLRCQDRFSRYE	294		
				Db	241	GNLTASDVFPTLNGDDBLKSGMFCMCLVDFIGERKNSLSEMPLFKATGNWLCKDRFSRYE	300		

Qy	295 YGFBIRTRRLCROVLMYHQLQALDSKITEHNGPTLVSRLILNTDSEAIASTLVFVRVGH	354	Qy	1374 IINQHQTENRWAFTGRTEDYDNGQPIRTYQPFNDWYVNSDARQEKBAYADTHVYDP	1433
Db	301 YGFBIRTRRLCROVLMYHQLQALDSKITEHNGPTLVSRLILNTDSEAIASTLVFVRVGH	360	Db	1381 VTKVENTKTRWAFTGRTEDYDNGQPIRTYQPFNDWYVNSDARQEKBAYADTHVYDP	1438
Qy	355 EODGRVVTPLPPLBLAYQDFSPRJAHWQPMVDLAFNFAIQRWQYDLSQKRDDEPLVSRVGH	414	Qy	1434 IGRERIKVITAKGMRRTLFTPWTFTVNDNTAAB	1468
Db	361 EDNNTVTLAPPBLAYQDFSPRJAHWQPMVDLAFNFAIQRWQYDLSQKRDDEPLVSRVGH	420	Db	1439 IGRERIKVITAKGMRRTLFTPWTFTVNDNTAAB	1473
Qy	415 GAWYKRSQAPBLGIGCSDAITWEKQPLSISVPSLQNSAISVINGQDQDWI7CPGKFGY	474		RESULT 5	
Db	421 NGWYKRSQAPBLGIGCSDAITWEKQPLSISVPSLQNSAISVINGQDQDWI7CPGKFGY	480	Q7N936 PHOLL PRELIMINARY; PRT; 1485 AA.		
Qy	475 HSQRPDGSMTRTPRPLALPVBYTHPRAQLADMGRGLSDAVLGPKSRYLYANTRDGPAK	534	ID Q7N936_		
Db	481 HSQRPDGSMTRTPRPLALPVBYTHPRAQLADMGRGLSDAVLGPKSRYLYANTRDGPAK	540	AC Q7N936;		
Qy	535 GKDYVQSGDITLPLVPGADPRKLVAFTSDVLSGQAHLYVESATKTYCWPMLGRGRGQDIT	594	DT 01-MAR-2004 (TREMBLrel. 26, Last sequence update)		
Db	541 GRDVQSGDITLPLVPGADPRKLVAFTSDVLSGQAHLYVESATKTYCWPMLGRGRGQDIT	600	DT 01-MAR-2004 (TREMBLrel. 26, Last annotation update)		
Qy	595 IJGFSQPATENPQVTLPLADLGSQPTDLYVHTRLPLFLNSGNGKAEPTVLRPFGI	654	DB 01-MAR-2004 (TREMBLrel. 26, Last annotation update)		
Db	601 LPGPQSAAFSFNPDVHLLADLGSQCPADLJYVHADRLDIFSNESNGNGKAKPKPLSPFGCL	660	DR 01-MAR-2004 (TREMBLrel. 26, Last annotation update)		
Qy	655 RFDITCQLQNAQDVOGLGASLILSVPHMSPHEWCDLTNMKWPILNNENNNNNGVYHTHRY	714	DR STRAIN=TT01;		
Db	661 RFDITCQLQNAQDVOGLGASLILSVPHMSPHEWCDLTNMKWPILNNENNNNNGVYHTHRY	720	DR MEDLINE=22957627; PubMed=14528314; DOI=10.1038/nbt886;		
Qy	715 RSSSQFWLDEKAALTTGOTPVCYLPPFPIHTLWOTETDEBISENKLVLTLYRARGAWGR	774	RA DUCHAUD B., RUSNIOK C., PRANGEUL L., BUCHRIESER C., GIVAUDAN A.,		
Db	721 RSSSQFWLDEKAALTTGOTPVCYLPPFPIHTLWOTETDEBISENKLVLTLYRARGAWGR	780	RA TAOURIT S., BOURBEAU-BEDDIE S., BOURBEAU-BEDDIE S., CHANDLER M., CHARLES J.-F.,		
Qy	775 EREPRGPGTYEQTDSHQLAQNAHABRPTPDTKWWATPLPVDNALSTETWKRDDQFPA	833	RA DASSA B., DERROZE R., DERZELLE S., FREYSSINET G., GAUDRIAU S.,		
Db	781 EREPRGPGTYEQTDSHQLAQNAHABRPTPDTKWWATPLPVDNALSTETWKRDDQFPA	840	RA ZOUDINE M., GLASER P., BOEMARE N., DAUCHIN A., KUNST P.;		
Qy	834 GFSRPRFTQDNKDVPLTPDDNSRWFARALKQOLLRSBLYGLDDSTNTHKXHPTVTFR	893	RA "The genome sequence of the entomopathogenic bacterium Photorhabdus		
Db	841 GFTPRPTLWKEGDPVLTPEDDDRYLWNAALKQPLISBLYGLDGSACQIQPTTFSR	900	RT luminescens", Natl. Biotechnol. 21:1207-1313 (2003).		
Qy	894 SOVRRLQHTDSRSPVPLWSSVYVSESRNHYTERIASPQCSNITLSSDRFCQPKLQSYVXP	953	DR EMLB: BX571860; CABE12810.1; -; Genomic_DNA.		
Db	901 PQVRLQDGEATVSPVLAWSVSESSYHTERIISPQCNQDITLSDLQPLQSYVXP	960	DR Photolist: plu0515; -		
Qy	954 BRCQPAINLXPDTLPDKLANSITDQQRQLRITQSSHHTTNTNTVJGLPDSRSDI	1013	DR GO:005737; C:cytoplasm; IBA.		
Db	961 RRRKPTPTNXPDTLPDTLFASSYDQQLRLTCROSSWHLIGNELRVTLGPDGTRDA	1020	DR GO:0008305; C:integrin complex; IBA.		
Qy	1014 FTYGAENPVAGGINLELLSDKNSLIAIDPREYLGQKTAATDQGNTPLQPTPTRLAIA	1073	DR GO:0007160; P:cell-matrix adhesion; IBA.		
Db	1021 FTYDAKQVDPGMLNETQKRNQPLKPTPTRLAIA	1080	DR InterPro: IPR000413; Integrin_alpha.		
Qy	1074 FTETTVENQSTLSAFNGSIPSQDKLSTTLEQAGTCQNTLFPRTGEKDLYKHTYDGT	1133	DR InterPro: IPR000408; Reg_chr_condens.		
Db	1081 FTETAVLTTESLSSAFG3TPDGLPGLTQAGTCQEPPLPRTGENKTVVARCGYDGT	1140	DR InterPro: IPR003284; Saa1_SpyV8.		
Qy	1134 AAQTRPQKQSNFOLTGKTLIWDANYCTVQGTDAGITTSKAYDWTLPQLTDND	1193	DR Pfam: PF03524; FG_GAP; 2.		
Db	1141 EAQTRPQVQRNSLTTGKNTLWDYCTVOTQDAAGTPTVSANDWTFPLPQLTDND	1200	DR PRTN: PRO1341; SALSVPBPROT.		
Qy	1194 NOHLITLDAIGRPITLRFWGTENKMTGSSPERASFSPPSPDYNAAIEBLKKPLPVAAQCQV	1253	DR PROSITE: PS00626; RCCC_2; UNKNOWN_1.		
Db	1201 NTHLITLDAIGRPITLRFWGTENKMTGSSPERASFSPPSPDYNAAIEBLKKPLPVAAQCQV	1260	DR Complete proteome.		
Qy	1254 YAPSSWMPVLSQKTFENRNLABQDWKLYNARVITTEDGRCTLAYBRWYQSKQKAPOLISL	1313	SQ SEQUENCE 1485 AA; 166091 MW; 7BBS5EB1AD50B89A1 CRC64;		
Db	1261 YAPSSWMPVLSQKTFENRNLABQDWKLYNARVITTEDGRCTLAYBRWYQSKQKAPOLISL	1320	DR Minmatches 223; Minmatches 366; Indels 29; Gaps 11;		
Qy	1314 ANGRPLPFLSLLTIDRQHDPQIQRQVVEPSDQFGLQIAARHECMARONESSI	1373	DR Best Local Similarity 58.6%; Score 4627.5; DB 2;		
Db	1321 TNSTGLPPLNHLTIDRQHDPQIQRQVVEPSDQFGLQIAARHECMARONESSI	1380	DR Matches 869; Conservation 223; Minmatches 366; Indels 29; Gaps 11;		
Qy	1374 IINQHQTENRWAFTGRTEDYDNGQPIRTYQPFNDWYVNSDARQEKBAYADTHVYDP	1433	Qy 1 MQNSQDFPITEILSLPKGGGAIITGMGRALPTGPDGMALSLPLPISAGRYAPFTLNNY	60	
Db	1381 VTKVENTKTRWAFTGRTEDYDNGQPIRTYQPFNDWYVNSDARQEKBAYADTHVYDP	1438	Db 1 MQQSPPEVITLSSLPKGGGAINNGEALSAAFPDGMATLSPPLSLRTGAPLGLS 60	60	
Qy	1434 IGRERIKVITAKGMRRTLFTPWTFTVNDNTAAB	1468	Qy 61 SGANGPGLGPGIGQGMWTSRRTQHGIPQYGNDDTPLSPQGEYMMIANNNOGQPDIRDYD	120	
Db	1439 IGRERIKVITAKGMRRTLFTPWTFTVNDNTAAB	1473	Db 61 61 KTGQVTLPISTHTVQFQHGDIDTDFLQPGQGTVVVA----DQPRD 113	113	
Qy	1473 QARISNPSQTTQTTQATQWLEASVSSRGQIYQYRAEDPTGCEADEITHLQOATAQYRLHI	231	Qy 114 STLQGINIGATFVTVGTRSLSHFSRSLBYQPKT--TGTKTDFWLYSPDGQVHLLGKSP	171	
Db	1480 QACIANPONDQQATQWLEASVSSRGQIYQYRAEDPTGCEADEITHLQOATAQYRLHI	239	Db 121 KTGQVTLPISTHTVQFQHGDIDTDFLQPGQGTVVVA----DQPRD 117	171	
Qy	232 VYNGNRTSETLPOLDSPAPSQDMLFLVLPVYDERSNLKTPPAFST-TGSWILCRDIF	290	Qy 172 QARISNPSQTTQTTQATQWLEASVSSRGQIYQYRAEDPTGCEADEITHLQOATAQYRLHI	231	
Db	240 VYNGNRTSETLPOLDSPAPSQDMLFLVLPVYDERSNLKTPPAFST-TGSWILCRDIF	299	Db 180 QACIANPONDQQATQWLEASVSSRGQIYQYRAEDPTGCEADEITHLQOATAQYRLHI	239	